ILLINOIS INFRASTRUCTURE STATE IMPLEMENTATION PLAN

for

2015 OZONE NATIONAL AMBIENT AIR QUALITY STANDARD

(with Emission Statement and Interstate Transport)

AQPSTR 18-01

October 2018

ILLINOIS ENVIRONMENTAL PROTECTION AGENCY
1021 NORTH GRAND AVENUE EAST
P.O. BOX 19276
SPRINGFIELD, IL 62794-9276

This page intentionally left blank.

Table of Contents

List of Tables

List of Figures

Web Links to Referenced Illinois Board Regulations and Procedures:

35 IAC Part 102 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-39324
35 IAC Part 203 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11912
35 IAC Part 215 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11924
35 IAC Part 217 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11928
35 IAC Part 218 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11930
35 IAC Part 219 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11932
35 IAC Part 225 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-55740
35 IAC Part 244 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11938
35 IAC Part 252 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11942
35 IAC Part 254 http://www.ipcb.state.il.us/documents/dsweb/Get/Document-11948

List of Acronyms and Abbreviations

Act	Illinois Environmental Protection Act
Agency	Illinois Environmental Protection Agency
AQS	Air Quality System
BART	Best Available Retrofit Technology
Board	Illinois Pollution Control Board
CAA	Clean Air Act
CAIR	Clean Air Interstate Rule
CFR	Code of Federal Regulation
CSAPR	Cross-State Air Pollution Rule
DV	design value
EGU	electric generating unit
FIP	Federal Implementation Plan
FLMs	Federal Land Managers
IAC	Illinois Administrative Code
ILCS	Illinois Compiled Statutes
Illinois EPA	Illinois Environmental Protection Agency
LADCO	Lake Michigan Air Directors Consortium
MACT	Maximum Achievable Control Technology
MOA	Memorandum of Agreement
NAAQS	National Ambient Air Quality Standard
NODA	Notice of Data Availability
NOx	nitrogen oxides
NNSR	Nonattainment New Source Review
NSR	New Source Review
$PM_{2.5}$	particulate matter with diameter less than or equal to 2.5 micrometers
ppm	parts per million
ppb	parts per billion
PSD	Prevention of Significant Deterioration
SIL	Significant Impact Level
SIP	State Implementation Plan
USEPA	United State Environmental Protection Agency
VOM	volatile organic material

INTRODUCTION

Under Clean Air Act ("CAA") sections 110(a)(1) and (a)(2), each state is required to submit a State Implementation Plan ("SIP") that provides for the implementation, maintenance, and enforcement of each primary or secondary National Ambient Air Quality Standard ("NAAQS"). Section 110(a)(1) requires each state to submit an "infrastructure SIP" within three years after promulgation of a new or revised NAAQS. Section 110(a)(2) includes a list of specific elements and sub-elements that the infrastructure SIP must meet. Many of the Section 110(a)(2) SIP elements relate to the general information and authorities that constitute the "infrastructure" of a state's air quality program; hence these SIPs are referred to as infrastructure SIPs. Following each element below is a summary of the requirement from the United States Environmental Protection Agency ("USEPA") guidance document[1] regarding infrastructure SIPs. The comment section following each element description is the Illinois Environmental Protection Agency's ("Illinois EPA" or "Agency") discussion regarding the Agency's fulfillment of the requirements with respect to the NAAQS, and in this case, specifically for the primary and secondary annual 2015 ozone standard of 0.070 ppm.

This document also contains the emissions statement certification required under Section 182(a) for the two nonattainment areas and the interstate transport analysis for the 2015 ozone NAAQS.

Element A - Emission Limits

Section 110(a)(2)(A): Emission limits and other control measures

> Each such plan shall-
>
> > *(A) include enforceable emission limitations and other control measures, means, or techniques (including economic incentives such as fees, marketable permits, and auctions of emission rights), as well as schedules and timetables for compliance, as may be necessary or appropriate to meet the applicable requirements of this Act.*

To satisfy Element A, the state should identify the existing SIP provisions or any new SIP provisions that the air agency has adopted that limit emissions of pollutants relevant to the subject NAAQS, in this case ozone, including precursors where applicable. USEPA notes that it would not expect infrastructure SIP submissions to identify nonattainment emission controls. Nonattainment area plans are subject to the timing requirements of CAA Section 172.

Comment: The Illinois EPA continues to monitor and implement needed revisions to its SIP. The Illinois Environmental Protection Act ("Act") provides the Illinois EPA with the authority to develop rules and regulations necessary to meet ambient air quality standards, as well as

[1] "Guidance on Infrastructure State Implementation Plan (SIP) Elements under Clean Air Act Sections 110(a)(1) and 110(a)(2)" dated September 13, 2013, from Stephen D. Page, Director, Office of Air Quality Planning and Standards.

programs and plans (415 ILCS 5/4). The Act also created the Illinois Pollution Control Board ("Board") and grants the Board the authority to develop and adopt rules and regulations (415 ILCS 5/5).

The Illinois EPA continues to implement emission reduction measures for volatile organic material ("VOM") and nitrogen oxides ("NOx") to meet CAA requirements for ozone through delegation of authority for the New Source Performance Standards and National Emission Standards for Hazardous Air Pollutants, and as directly regulated through SIP-approved regulations set forth in 35 Illinois Administrative Code ("IAC") including Part 215: Organic Material Emissions Standards and Limitations, Part 218: Organic Material Emission Standards and Limitations for the Chicago Area, Part 219: Organic Material Emission Standards and Limitations for the Metro East Area, Part 217: Nitrogen Oxides Emissions, and Part 225: Control of Emissions from Large Combustion Sources.

For Nonattainment New Source Review ("NNSR") measures for preconstruction, the Illinois EPA continues to implement the requirements for NNSR in 35 IAC Part 203: Major Stationary Sources Construction and Modification. Part 203 has been written to reflect changes to area classifications and standards automatically.

Element B - Monitoring

Section 110(a)(2)(B): Ambient air quality monitoring data system

> Each such plan shall –
>
> *(B) provide for establishment and operation of appropriate devices, methods, systems, and procedures necessary to –*
> *(i) monitor, compile, and analyze data on ambient air quality, and*
> *(ii) upon request, make such data available to the Administrator.*

To satisfy Element B, the infrastructure SIP submission should provide evidence of a commitment by, and legal authority for, an agency or official to perform the following actions:

- Monitor air quality for the relevant NAAQS pollutant(s) at appropriate locations in accordance with the USEPA's ambient air quality monitoring network requirements.
- Submit data to the USEPA's Air Quality System ("AQS") in a timely manner in accordance with 40 CFR Part 58.
- Provide information to USEPA Regional Office regarding air quality monitoring activities, including a description of how the air agency has complied with the monitoring requirements and an explanation of any proposed changes to the network. Submission of annual monitoring network plans consistent with USEPA's ambient air monitoring regulations is one way of providing this information.
- Obtain USEPA approval of any planned changes to monitoring sites or to the network plan.

Comment: In accordance with its SIP, the Illinois EPA continues to operate an extensive monitoring network collecting data and tracking the measurements of a variety of pollutants throughout the State. There are currently 33 sites with 44 instruments that specifically collect ozone data. Section 4 of the Act provides the Illinois EPA with the authority to implement and administer the monitoring network (415 ILCS 5/4). The Illinois EPA publishes an annual report, available on the Agency's website, which describes the monitoring network and summarizes the measurements for the year. Illinois EPA also prepares and publishes for public comment its plan for the coming year. USEPA provides approval of the plan in advance of each calendar year. All reports and data are routinely shared through USEPA's AQS or are readily available to the USEPA upon request. The Illinois EPA ensures that any new monitoring requirements related to the revised NAAQS are implemented and coordinated with USEPA consistent with 40 CFR Part 58.

Element C - Enforcement and Permitting

Section 110(a)(2)(C): Program for enforcement of control measures and for construction or modification of stationary sources

Each such plan shall –

(C) include a program to provide for the enforcement of the measures described in subparagraph (A), and regulation of the modification and construction of any stationary source within the areas covered by the plan as necessary to assure that national ambient air quality standards are achieved, including a permit program as required in parts C and D.

This element consists of three sub-elements:

- Enforcement;
- Statewide regulation of new and modified minor sources and minor modifications of major sources (i.e., minor new source review ("NSR") or minor NSR); and.
- Preconstruction permitting of major sources and major modifications in areas designated attainment or unclassifiable for the subject NAAQS, as required by CAA Title I Part C (i.e., the major source Prevention of Significant Deterioration ("PSD") program).

Comment: The Illinois EPA implements an air enforcement program that includes the Bureau of Air ("BOA") Compliance Section and the Agency's Division of Legal of Counsel. Sections 4, 30, and 31 of the Act provide the Illinois EPA with the authority to implement and administer this program. (415 ILCS 5/4, 5/30, and 5/31). In Illinois, enforcement actions are brought by the Office of the Illinois Attorney General or local State's Attorney offices, who consult with the Illinois EPA. The State of Illinois enforces all terms of minor NSR, PSD, and nonattainment NSR construction and operating permits through this coordinated effort. The Act also gives the authority for Illinois EPA staff to inspect these facilities and to enforce against any violations of the Act, permit conditions, or delegated federal regulations.

The Illinois EPA continues to implement a minor NSR permit program under Sections 9 and 39 of the Act (415 ILCS 5/9 and 5/39). For major sources in attainment and unclassifiable areas, the State continues to administer the federal PSD regulations under Section 9.1(d) of the Act and 40 CFR 52.21. These regulations contain provisions specific to ozone and its precursors, as well as appropriate requirements for permitting of pollutants related to other NAAQS, and for greenhouse gases. Illinois' major NSR Program for sources in nonattainment areas is implemented through its SIP-approved regulation adopted at 35 IAC Part 203: Major Stationary Sources Construction and Modification.

USEPA proposed approval of 35 IAC Part 203 meeting the requirements of 182(a) for the implementation of a NNSR program for the 2008 ozone NAAQS (83 FR 50551) on October 9, 2018. While Part 203 may be worded or organized differently than the federal counterparts in 40 CFR 51, these differences do not affect the relative stringency of such provisions. As such, Part 203 meets the requirements of the NNSR program implementation under 182(a) for the 2015 ozone NAAQS.

These program requirements ensure that the construction and modification of stationary sources do not cause or contribute to a violation of the 2015 ozone NAAQS from emissions of relevant precursors, NOx and VOM. The Illinois EPA commits to working with USEPA on continual compliance with meeting these requirements.

Element D(i)(I) and (II) - Interstate Transport

Section 110(a)(2)(D)(i): Interstate pollution transport

> Each such plan shall –
>
> *(D) contain adequate provisions –*
> *(i) prohibiting, consistent with the provisions of this title, any source or other type of emissions activity within the State from emitting any air pollutant in amounts which will –*
> *(I) contribute significantly to nonattainment in, or interfere with maintenance by, any other State with respect to any such national primary or secondary ambient air quality standard, or*
> *(II) interfere with measures required to be included in the applicable implementation plan for any other State under part C to prevent significant deterioration of air quality or to protect visibility.*

Comment: USEPA has already developed programs that address Section 110(a)(2)(D) for many of the NAAQS, such as the NOx SIP Call, Clean Air Interstate Rule ("CAIR"), Cross-State Air Pollution Rule ("CSAPR"), the CSAPR Update Rule, and the Regional Haze Rule.

Section 110(a)(2)(D)(i)(I), also known as the "good neighbor provisions," are often referred to as prong 1 (significant contribution to nonattainment) and prong 2 (interference with maintenance). The Illinois EPA has adopted and implemented various SIP-approved major programs related to the interstate transport of pollution and is currently subject to a Federal Implementation Plan

("FIP") for the CSAPR. The current SIP-approved state regulations under Part 217 cover large engines (Subpart Q), cement kilns (Subpart T), and large nonelectrical generating boilers pursuant to the NOx SIP Call (Subpart U). The current SIP-approved regulations included in Illinois' Regional Haze SIP are in 35 IAC Part 225: Control of emissions from Large Combustion Sources, Subpart B, which includes the Multipollutant Standard and the Combined Pollutant Standard.

On October 1, 2015, the USEPA revised the primary and secondary NAAQS for ozone to an eight-hour standard of 0.070 parts per million (ppm) or 70 parts per billion (ppb) (80 *Federal Register* (FR) 65291, October 26, 2015). Within three years of the promulgation of any new or revised NAAQS, CAA §110(a)(1) requires states to submit a SIP revision to provide for the implementation, maintenance, and enforcement of the NAAQS. Section 110(a)(2)(A) through (M) lists the elements that the SIP submissions must contain. This section specifically addresses transport requirements under CAA, §110(a)(2)(D).

Pursuant to CAA §110(a)(2)(D)(i), this proposed transport SIP revision must contain adequate provisions that prohibit any source or other type of emissions activity within the state from emitting any NAAQS pollutants in amounts that will:

- contribute significantly to nonattainment of the 2015 ozone NAAQS for areas in other states;
- interfere with the maintenance of the 2015 ozone NAAQS in any other state;
- interfere with measures required to meet an implementation plan for any other state related to prevention of significant deterioration (PSD); and
- interfere with measures required to meet the implementation plan for any other state related to regional haze and visibility.

In addition, pursuant to CAA §110(a)(2)(D)(ii), this proposed SIP revision must provide information demonstrating compliance with the applicable requirements of CAA §126 and §115 relating to interstate and international pollution abatement.

<u>Prong 1 and 2</u>:

The USEPA has historically failed to issue timely guidance to address transport requirements for previous NAAQS and has not issued formal guidance for states to use in developing transport SIP revisions for the 2015 ozone NAAQS. States do not have the option of waiting for the USEPA to provide guidance before proceeding with SIP development, review, and submittal and must proceed without the USEPA's formal guidance to develop submittals based on information available at the time.

The USEPA used a four-step framework, referred to as the CSAPR framework, to address the requirements of the "good neighbor" provision in the 2015 Transport Notice of data availability ("NODA"). From the 2015 Transport NODA, the four steps in the CSAPR framework are as follows (82 FR 1735):

> "[1] Identifying downwind receptors that are expected to have problems attaining or maintaining clean air standards (i.e., NAAQS);

> [2] determining which states contribute to these problems in amounts sufficient to 'link' them to the downwind air quality problems;
> [3] for states linked to downwind air quality problems, identifying upwind emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS by quantifying upwind reductions in ozone precursor emissions and apportioning emissions reduction responsibility among upwind states; and
> [4] for states that are found to have emissions that significantly contribute to nonattainment or interfere with maintenance of the NAAQS downwind, adopting SIPs or FIPs that eliminate such emissions."

The Illinois EPA's analysis primarily covers steps [1] and [2] of the four-step framework. Steps [3] and [4] of USEPA's framework are relevant only if emissions from Illinois contribute significantly to nonattainment or interfere with maintenance at downwind monitors in another state.

Steps 1 and 2:

In the 2015 Transport NODA modeling (USEPA, 2016), upwind states with contributions greater than or equal to 0.7 ppb to a monitor's future year design value are linked to the downwind monitor. Once the linkages have been established, the portion of emissions from linked states that were determined by the USEPA to have contributed significantly to nonattainment or interfere with maintenance are identified (Steps 2 and 3, respectively, of the USEPA's four-step framework). The USEPA's framework establishes the 1% of NAAQS threshold as the default definition of significant contribution to nonattainment or interference with maintenance. Illinois EPA maintains that an arbitrary threshold of 1% of the NAAQS for significant contribution to nonattainment or interference with maintenance is inappropriate. In the 2015 Transport NODA, the USEPA acknowledges that a contribution of 1% of the NAAQS from an upwind state alone does not determine whether the upwind state significantly contributes to nonattainment or interferes with maintenance of a NAAQS to a downwind state (82 FR 1740). In this SIP submittal, it is critical to determine if emissions from an upwind state contribute significantly to nonattainment or interfere with maintenance prior to the identification (and subsequent reduction) of such emissions.

USEPA has promulgated a series of transport-related rules, starting with CSAPR in 2011, followed by the CSAPR Update Rule in 2016, and Supplemental Information on the Interstate Transport State Implementation Plan Submissions in October 2017, in order to help states address their "good neighbor" responsibilities as it pertained to the 2008 ozone NAAQS. At that time, USEPA first modeled 2023 as the future year, reasoning that rulemaking and installation of new controls would not be complete until the start of the 2023 ozone season. USEPA has also declared that the CSAPR Update is a full remedy for the 2008 NAAQS and is in the process of codifying that with the proposed CSAPR Close-Out Rule (2018). However, USEPA considers the controls associated with the most recent set of transport modeling as only a partial remedy for the 2015 NAAQS. Therefore, it is Illinois EPA's responsibility to assess the contribution of Illinois' emissions to monitors in downwind states that are projected to have 2015 NAAQS attainment or maintenance problems in 2023.

The Lake Michigan Air Directors Consortium ("LADCO") has taken the USEPA 2023 modeling platform and modified and expanded its scope to provide source apportionment information specific to the LADCO states for use in their "Good Neighbor" SIPs. The methodology and results are thoroughly documented in "Interstate Transport Modeling for the 2015 Ozone National Ambient Air Quality Standard, Technical Support Document" (LADCO, August 13, 2018), and are the basis for the discussion in the remainder of this section. The LADCO document is in Attachment B of this document.

LADCO used the USEPA 2011 modeling platform (referred to as the "EN" platform) and ran a benchmarking simulation to ensure that they correctly installed and configured the data. LADCO successfully reproduced the USEPA results using the same model inputs and configuration but using the LADCO computing infrastructure. A complete discussion of the benchmarking is in Section 5.1 of Attachment B.

Since LADCO was able to replicate the 2011 Base Case results from USEPA's modeling, the conclusions that USEPA made from their model performance evaluation are valid for the LADCO 2011 Base Case modeling also. USEPA (2016)[2] stated that the performance statistics for the 2011 "EL" platform, which was the basis for the "EN" platform, are within the range of other recent peer-reviewed and regulatory applications. Table AA shows that mean bias and mean error during higher ozone days at key monitors for Illinois impacts (identified as such in previous USEPA modeling) are within the range of acceptable performance, defined as normalized mean bias of plus or minus 15%, and normalized mean error of no greater than 25%.

Table AA. May-September 2011 Ozone Model Performance Statistics at key monitors where observations > 60 ppb

Site ID	County, State	Mean Obs.	Mean Modeled	Normalized Mean Bias (%)	Normalized Mean Error (%)
90010017	Fairfield, CT	69.6	68.6	-1.5	18.0
90013007	Fairfield, CT	73.0	73.4	0.7	13.2
90019003	Fairfield, CT	72.0	73.5	2.1	12.5
240251001	Harford, MD	73.7	73.6	-0.1	11.8
260050003	Allegan, MI	69.3	68.9	-0.6	11.8
261630019	Wayne, MI	69.3	58.6	-15.5	16.4
360810124	Queens, NY	72.1	65.1	-9.8	13.7
360850067	Richmond, NY	71.3	67.6	-5.1	12.1
361030002	Suffolk, NY	73.0	70.0	-4.2	10.2
550790085	Milwaukee, WI	71.1	63.8	-10.4	15.5
551170006	Sheboygan, WI	72.9	64.5	-11.5	15.3

[2] USEPA. 2016. Air Quality Modeling Technical Support Document for the 2015 Ozone NAAQS Preliminary Interstate Transport Assessment. Research Triangle Park, NC. https://www.epa.gov/sites/production/files/2017-01/documents/aq_modeling_tsd_2015_o3_naaqs_preliminary_interstate_transport_assessmen.pdf

In March 2018, USEPA released a memo (USEPA, 2018)[3] that outlined several flexibilities that could be considered in developing the Good Neighbor SIPs for the 2015 standard. One of these flexibilities allows for the use of alternative power sector modeling that is consistent with USEPA's emissions inventory guidance. This flexibility allowed LADCO to replace the Electric Generation Unit ("EGU") emissions in the EN platform with 2023 EGU forecasts estimated with the ERTAC EGU Tool. The ERTAC EGU Tool provides better estimates of the growth and control forecasts for EGUs than does the USEPA approach. LADCO used USEPA "EN" platform 2023 emissions estimates for all other inventory sectors (see Section 2.5 of Attachment B).

Table BB shows the difference in EGU Sector NOx emissions between the 2011 base, USEPA's projections for 2023, and LADCO's 2023 projections, for all states represented by LADCO. The LADCO platform has more EGU NOx in Illinois, but there is less than a 1% difference in NOx totals in the LADCO region between the two platforms.

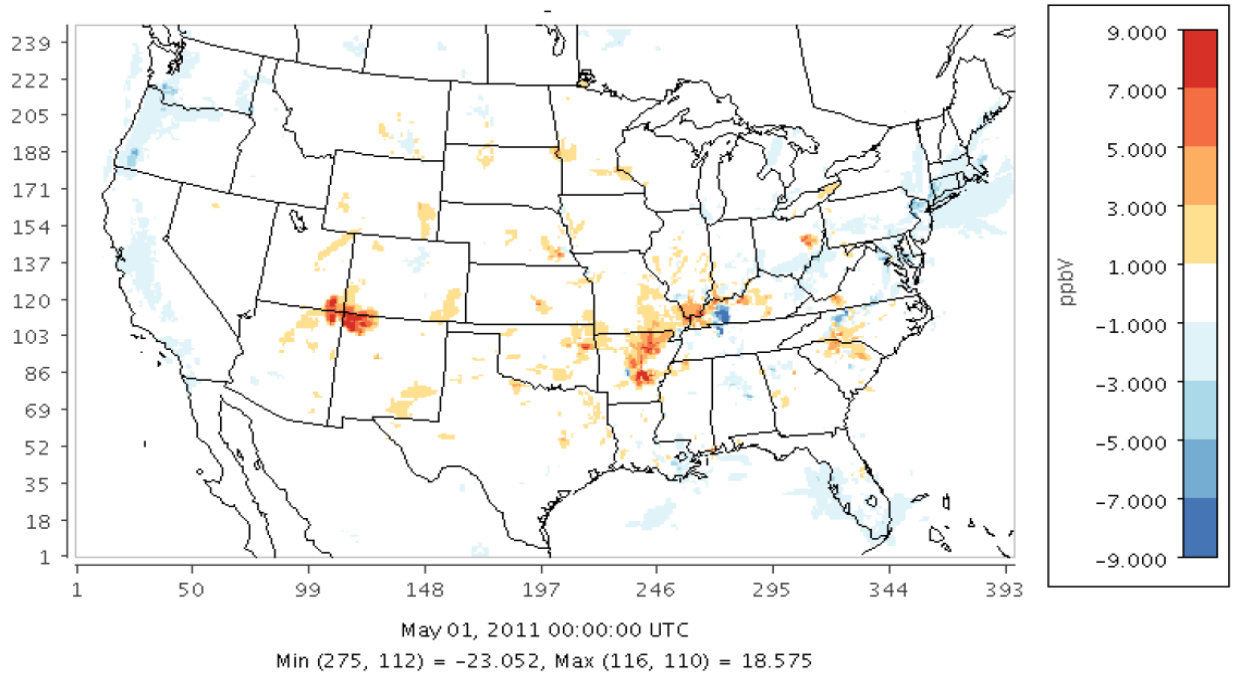
Table BB. EGU sector annual NOx emissions (tons/year)

State/Region	2011 Base	EPA 2023	LADCO 2023
IL	73,644	30, 764	34,078
IN	120,264	63,397	61,314
MI	77,739	33,708	27,977
MN	35,181	21,919	14,600
OH	103,189	37,573	50,140
WI	31,702	15,419	15,829
LADCO	441,719	202,760	203,938

Figure AA shows the difference in ozone season maximum (LADCO concentrations minus the USEPA concentrations) resulting from using different EGU forecasting tools. Blue colors are where the USEPA simulation forecasted higher ozone than the LADCO simulation. Orange and red colors are where the LADCO simulation predicted higher ozone. The white areas, which are most of the map, show where the maximum predictions were within one part per billion of each other. The LADCO simulations generally predict a little less ozone from the Chicago area eastward and from the Ohio Valley northward. However, the two platforms still show very similar results.

[3] USEPA. 2018. Memorandum: Information on the Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards under Clean Air Act Section 110(a)(2)(D)(i)(I), Research Triangle Park, NC. https://www.epa.gov/sites/production/files/2018-03/documents/transport_memo_03_27_18_1.pdf

Figure AA. Ozone Season 2023 Differences in Maximum Ozone between LADCO and EPA



LADCO followed the USEPA Draft Guidance for Attainment Demonstration Modeling (USEPA, 2014)[4] to calculate design values (DV) for monitors in the Midwest and Northeast U.S. LADCO used version 1.2 of USEPA's Modeled Attainment Test – Community Edition (SMAT-CE) software. The methodology that this software uses to calculate DVs is presented in more detail in Section 3 of Attachment B. The DV that is compared to the standard for determining attainment is the **average** of the DVs for each of five individual yeas surrounding the 2011 base year, that is, 2009-13. If the five-year average is < 71.0 ppb, that monitor is deemed to be in attainment. Figure BB shows the average of the future year DVs from the LADCO 2023 simulation. The yellow dots in Figure BB are monitors that are within 5 ppb of the standard, while orange dots represent monitors that are not in attainment. The 2023 simulation predicted that no monitors in the Midwest and three monitors in the Northeast will be nonattainment for the 2015 NAAQS. Figure CC further focuses on the Lake Michigan Region.

[4] US EPA. 2014. Memorandum: Draft Modeling Guidance for Demonstrating Attainment of Air Quality Goals for Ozone, $PM_{2.5}$, and Regional Haze. Research Triangle Park, NC> https://www3.epa.gov/ttn/scram/guidance/guide/Draft_O3-PM-RH_Modeling_Guidance-2014.pdf

Figure BB. Future Year Ozone Design Values from the LADCO 2023 Simulation

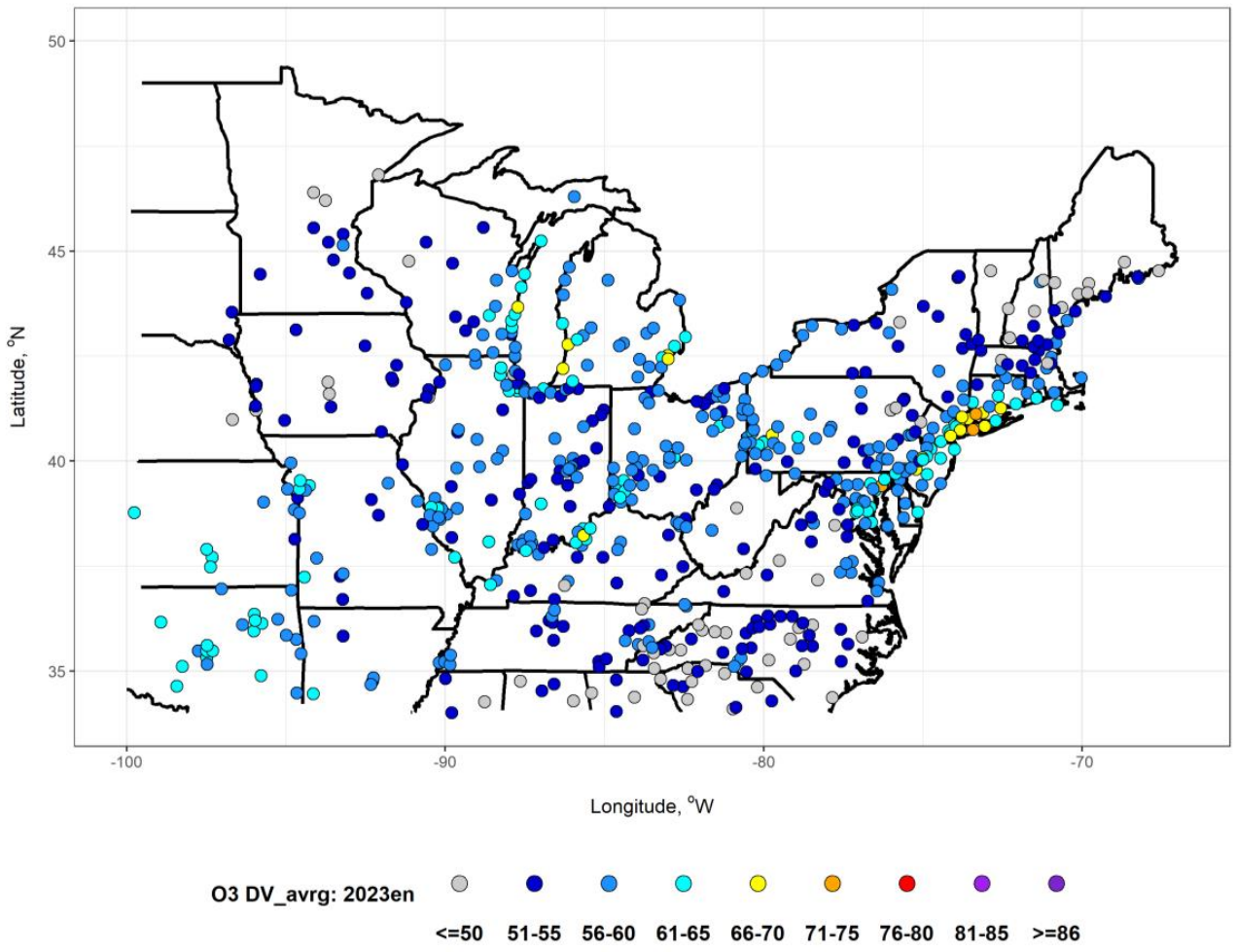
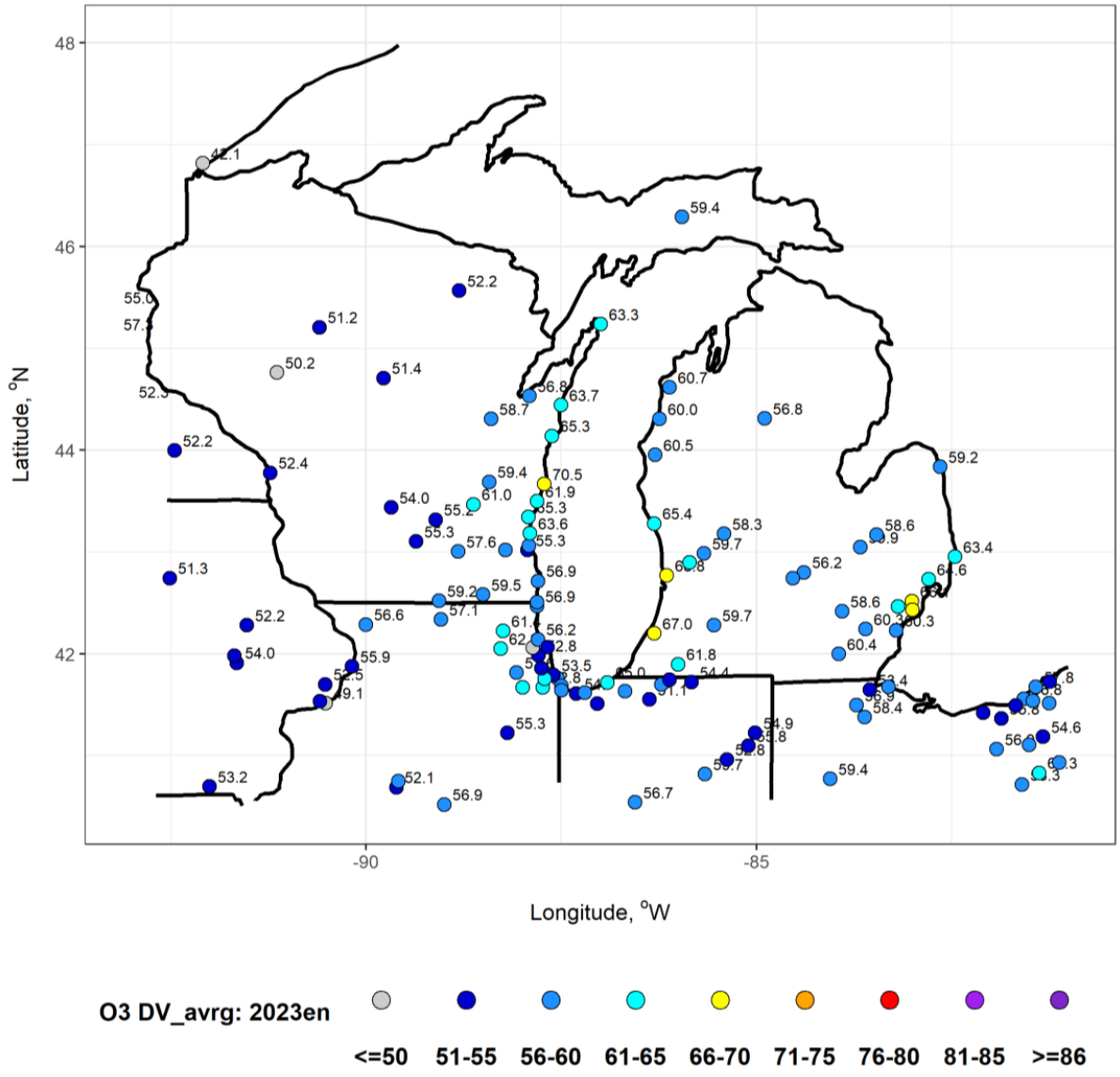


Figure CC. Future Year Design Values from the LADCO 2023 Simulation; Lake Michigan Zoom



For a monitor to be predicted to be maintenance, each of the individual year DVs that go into the five-year average have to be compared to the standard. If any **individual** year has a DV of ≥ 71.0 ppb, but are in attainment, that monitor is deemed to be in maintenance. The 2023 LADCO simulation shows that two monitors in the Lake Michigan area, in Sheboygan County, WI, and Allegan County MI, are predicted to be in maintenance. The maximum DV at Sheboygan is forecast to be 72.8 ppb, and the maximum design value at Holland (Allegan County) MI is forecast to be 71.5 ppb. Three monitors in the Northeast are forecast to be nonattainment, and five more Northeast monitors forecast to be maintenance.

To determine what impact Illinois may have on the nonattainment and maintenance monitors, source apportionment runs were conducted. Sources in Illinois are tagged to determine their cumulative impact on these monitors. This type of culpability assessment has been done since the Ozone Transport Assessment Group first looked at the issue. A significant contribution at that time was considered to be 2 ppb. There has never been a statutory level of significance set as that term pertains to the "good neighbor" provision of the CAA, so USEPA has arbitrarily tightened it over time to the current level of 0.70 ppb (1% of the standard). On August 31, 2018, USEPA released a guidance memorandum titled "Analysis of Contribution Thresholds for Use in Clean Air Act Section 110(a)(2)(D)(i)(I) Interstate Transport State Implementation Plan Submissions for the 2015 Ozone National Ambient Air Quality Standards" that looks at the credibility of using alternate significance threshold of 1 ppb and 2 ppb. The data that USEPA analyzed show that the upwind contribution captured by a 1 ppb threshold is comparable to the contribution captured by a 1% threshold. USEPA concludes that "it may be reasonable and appropriate for states to use a 1 ppb contribution threshold as an alternative to a 1 percent threshold…"

The use of 1% of the NAAQS threshold for modeled contribution as the sole definition of significant contribution is also inappropriate for the 2015 ozone NAAQS since the more stringent 0.7 ppb threshold is an order of magnitude smaller than the biases and errors typically documented for regional photochemical modeling (Simon *et al*., 2012)[5]. A 1.0 ppb level also matches the recommended Significant Impact Level ("SIL") for the contribution of an individual source in a permit modeling evaluation. Although the choice of an ozone SIL was based on a complex statistical treatment of monitored data, the same decision is made for a source contribution as is made for a state contribution; beneath that level, no further analysis is needed, above that level, additional analysis is required. An individual source is likely to have a high contribution on a day that is conducive to ozone formation, which are the same type of days that are being considered when evaluating a state's contribution at a monitor. It seems absurd that a concentration that would make a state significant to a monitor would allow a single proposed source to proceed in permitting without any further evaluation. Therefore, the Illinois contribution should be deemed "significant" only if there is a 1.0 ppb or greater contribution. Even a 1.0 ppb threshold is very small compared to the allowable error in peak performance, and bias. Illinois EPA therefore concludes that a significance threshold of 1.0 ppb is still very conservative.

Interstate transport linkages are evaluated for the Midwest and Northeast monitors that are forecast to be maintenance (see Section 5.4 of Attachment B). The 2023 modeling results processed with SMAT-CE shows that ten monitors that are predicted to be in maintenance; besides the two Lake Michigan region monitors, there are four in Connecticut, three in New York, and one in Maryland. Table CC shows the contribution of Illinois sources to the nonattainment and maintenance monitors.

---

[5] Simon, H., Baker, K.R., and Phillips, S.B., 2012 Compilation and interpretation of photochemical model performance statistics published between 2006 and 2012, Atmospheric Environment, v. 61, 124-139.

Table CC. Illinois contributions to nonattainment and maintenance monitors

Monitor Name	Monitor County And State	AQS ID	5-year Average DV	5-year Max DV	IL Contribution
Babylon	Suffolk NY	361030002	71.6	73.1	0.65
Westport	Fairfield CT	90019003	71.4	74.2	0.67
Edgewood	Harford MD	240251001	71.0	73.3	0.85
Kohler Andre	Sheboygan WI	551170006	70.5	72.8	14.93
Stratford	Fairfield CT	90013007	69.8	73.7	0.72
Richmond	Richmond NY	360850067	70.9	72.4	0.86
Holland	Allegan MI	260050003	68.8	71.5	19.25
Queens	Queens NY	360810124	69.2	71.0	0.72
New Haven	New Haven CT	90099002	69.9	72.6	0.43
Greenwich	Fairfield CT	90010017	68.9	71.2	0.39

The columns in Table CC titled "5-year average DV" and "5-year Max DV" are the result of using the regulatory-approved method for calculating annual DV's. The last column in Table CC shows that the Illinois contribution is significant only for the two Lake Michigan region maintenance monitors. Illinois is not contributing significantly to any monitor outside of the LADCO states.

Steps 3 and 4:

The Sheboygan and Holland monitors are in the LADCO domain, and as such, have been part of the air quality issues that are dealt with in regulatory efforts first set forth in a 1989 Memorandum of Agreement ("MOA") between Illinois, Indiana, Michigan, and Wisconsin, and further strengthened by a 1991 MOA that established the Lake Michigan Control Program. LADCO provides a forum for member states to discuss and work towards solution for regional air quality issues within its member states. While LADCO has been in existence, ambient ozone concentrations have been dramatically reduced in the Lake Michigan region. Illinois EPA is continuing to work through LADCO to refine forecasts of future air quality and attainment status for receptors in the Midwest. Additional refinements in emissions inventories are ongoing, and a base case representing a more recent year (2016) is being developed. Updated future year projections will then be made, along with new source culpabilities. Field data from the 2017 Lake Michigan Ozone Study will inform planners as to better simulating the complex meteorology and chemistry in the Lake Michigan region. Illinois EPA will continue working with USEPA to identify additional flexibilities for defining maintenance, quantifying interstate transport, excluding international transport, and demonstrating attainment.

<u>Prong 3 and 4</u>:

Section 110(a)(2)(D)(i)(II) provisions are often referred to as prong 3 (interference with PSD) and prong 4 (interference with visibility protection). To address prong 3 and prong 4, the Illinois EPA administers the Federal PSD regulations as discussed above in element C. For sources not subject to PSD because they are in a nonattainment area, Illinois has a SIP-approved nonattainment NSR program in 35 IAC Part 203: Major Stationary Sources Construction and

Modification. Visibility protection is also included in the SIP approved Regional Haze program (77 FR 39943) that meets the requirements of 40 CFR 51.308.

Element D(ii) – International Transport

Section 110(a)(2)(D)(ii): Interstate pollution abatement and international air pollution

Each such plan shall –

(D) contain adequate provisions –

(ii) insuring compliance with the applicable requirements of sections 126 and 115 (relating to interstate and international pollution abatement).

Section 126(a) requires state SIPs to include provisions requiring a new or modified source to notify neighboring states of potential impacts from the source. Section 126(b) and (c) are applicable only if USEPA has, in response to a petition, made a finding that emissions from a source within Illinois emits prohibited amounts of air pollution. Section 115 authorizes USEPA to revise the Illinois SIP under certain conditions to alleviate international transport into another country.

Comment: Section 110(a)(2)(D)(ii) requires SIPs to contain provisions that address CAA Section 115 (International Air Pollution) and Section 126 (Interstate Air Pollution Abatement). Illinois has no pending obligations under Section 115 with respect to any previous NAAQS or the 2015 ozone NAAQS. With respect to the requirements of Section 126(a), which requires Illinois to notify states of new or modified sources, Illinois EPA administers the Federal PSD regulations per 40 CFR 52.21, which contain the necessary provisions to satisfy the applicable requirement of Section 126(a).

There are no sources in Illinois subject to a federally approved active finding under Section 126 with respect to any air pollutant, nor are there any final findings under Section 115 against Illinois with respect to any air pollutant.

Element E – Resources

Section 110(a)(2)(E): Adequate resources and authority, conflict of interest, and oversight of local governments and regional agencies

Each such plan shall –

(E) provide

(i) necessary assurances that the State (or, except where the Administrator deems inappropriate, the general purpose local government or governments, or a regional agency designated by the State or general purpose local governments for such purpose) will have adequate personnel, funding, and authority under State (and, as appropriate, local) law to carry out such implementation plan (and is not prohibited by any

provision of Federal or State law from carrying out such implementation plan or portion thereof),

(ii) requirements that the state comply with the requirements respecting State boards under section 128, and

(iii) necessary assurances that, where the State has relied on a local or regional government, agency, or instrumentality for the implementation of any plan provision, the State has responsibility for ensuring adequate implementation of such plan provision.

Section 110(a)(2)(E)(i) requires assurance that the state has adequate personnel and funding to carry out its SIP functions.

Section 110(a)(2)(E)(ii) pertains to Section 128, applicable to certain boards, bodies, and personnel that approve permits or enforcement orders. Section 128 states:

Section 128(a)-Not later than the date one year after the date of the enactment of this section, each applicable implementation plan shall contain requirements that –

(1) any board or body which approves permits or enforcement orders under this Act shall have at least a majority of members who represent the public interest and do not derive any significant portion of their income from persons subject to permits or enforcement orders under this Act, and

(2) any potential conflicts of interest by members of such board or body or the head of an executive agency with similar powers be adequately disclosed.

A state may adopt any requirements respecting conflicts of interest for such boards or bodies or heads of executive agencies, or any other entities which are more stringent than the requirements of paragraphs (1) and (2), and the Administrator shall approve any such more stringent requirements submitted as part of an implementation plan.

Section 110(a)(2)(E)(iii) requires the state to have legal authority under state law to carry out its SIP and related issues.

Comment: With respect to sub-elements (i) and (iii), the Illinois EPA has sole authority to develop, implement, and enforce Illinois' SIP.

As stated in previous Infrastructure SIP submittals, on July 12, 2011, Governor Quinn signed into law Public Act 097-0095/House Bill 1297. These revisions to the Act, found in 415 ILCS 5/9.6 and 39.5(18), increased operating permit fees in Illinois and provided additional funding for the Clean Air Act Permit fund. In combination with the funding provided by the Illinois EPA's Performance Partnership Agreement ("PPA") with USEPA, the Illinois EPA has the resources to carry out the required air programs.

The Act provides the Illinois EPA, in conjunction with the Board, with the legal authority to develop programs, plans, and rules necessary to meet ambient air quality standards and respond to any USEPA findings of inadequacy with the Illinois SIP (415 ILCS 5/4 and 10). The Board

may also enact regulations that are required by law, that are otherwise part of the State's attainment plan and are necessary to attain the NAAQS, or that are necessary to comply with the requirements of the federal CAA (415 ILCS 5/10). This provides assurance that the Illinois EPA retains responsibility for ensuring adequate implementation of the SIP.

With respect to sub-element (ii), Section 110(a)(2)(E) also requires states to comply with the requirements respecting state boards per Section 128. The Illinois EPA has worked with USEPA and the Board on meeting the full requirements of Section 110(a)(2)(E). The Board recently addressed this issue in a rulemaking adopted June 22, 2017. This rulemaking was submitted to USEPA as part of a SIP revision on January 25, 2018, and is awaiting approval.

Element F – Source Monitoring and Reporting

Section 110(a)(2)(F): Stationary source monitoring and reporting

Each such plan shall –

(F) require, as may be prescribed by the Administrator –

(i) the installation, maintenance, and replacement of equipment, and the implementation of other necessary steps, by owners or operators of stationary sources to monitor emissions from such sources.

(ii) periodic reports on the nature and amounts of emissions and emissions-related data from such sources, and

(iii) correlation of such reports by the State agency with any emission limitations or standards established pursuant to this Act, which reports shall be available at reasonable times for public inspection.

Section 110(a)(2)(F) requires SIPs to include stationary source monitoring, emissions reporting, and reporting on the nature and amount of emissions and emissions-related data from such sources. It requires that the SIP include regulations for source monitoring, recordkeeping, and reporting requirements applicable to the subject NAAQS.

Comment: The Act gives the Illinois EPA (415 ILCS 5/4) and the Board (415 ILCS 5/5 and 10) the authority to require regulated sources to install and operate monitoring equipment, to perform emissions testing, and to submit emissions-related data and emissions reports to the Bureau of Air for review, depending on applicable requirements and the type of permit issued to the source. All reasonable efforts are made to maximize the effectiveness of available resources to review the required reports and make them available to the public. The Illinois EPA certifies that there are no Agency provisions or regulations preventing the use of any credible evidence in any of the above required reports.

The Illinois EPA commits to meet any changes to the reporting, inventory, and emission statement requirements associated with any new or revised NAAQS under 40 CFR 51.116, 51.211, 51.212, 51.321-323 and Attachment A, and to work with USEPA's regional and other offices as necessary.

Element G – Emergency Episodes

Section 110(a)(2)(G): Emergency episodes

Each such plan shall –

(G) provide for authority comparable to that in section 303 and adequate contingency plans to implement such authority.

This section requires states to provide for authority to address activities causing imminent and substantial endangerment to public health, including contingency plans to implement the emergency episode provisions in their SIPs.

Comment: Section 34 of the Act allows the Illinois EPA to declare alerts upon a finding that episode or emergency conditions exist (415 ILCS 5/34). Further, Section 43(a) of the Act authorizes the Illinois EPA to request the Office of the Illinois Attorney General or a State's Attorney to seek immediate injunctive relief in circumstances of substantial danger to the environment or to the public health of persons (415 ILCS 5/43(a)). Thus, the Illinois EPA has the necessary authority to address activities causing imminent and substantial endangerment to public health, as required by Section 110(a)(2)(G).

The Illinois EPA certifies that the SIP-approved 35 IAC Part 244 addresses the requirement to implement emergency action plans in the event of an Air Quality Alert. These regulations meet the requirements of 40 CFR 51.151 and 51.152.

Element H – SIP Revisions

Section 110(a)(2)(H): SIP revisions

Each such plan shall –

(H) provide for revisions of such plan –

(i) from time to time as may be necessary to take account of revisions of such national primary or secondary ambient air quality standard or the availability of improved or more expeditious methods of attaining such standard, and

(ii) except as provided in paragraph (3)(C), whenever the Administrator finds on the basis of information available to the Administrator that the plan is substantially inadequate to attain the national ambient air quality standard which it implements or to otherwise comply with any additional requirements established under this Act.

Section 110(a)(2)(H) requires that states have the authority to revise their SIPs in response to changes in the NAAQS, availability of improved methods for attaining the NAAQS, or in response to a USEPA finding that a SIP is substantially inadequate.

Comment: The Act provides the Illinois EPA, in conjunction with the Board, with the authority to develop programs for the prevention, control, and abatement of air pollution, and to develop, adopt, and enforce rules and regulations for the purpose of achieving and maintaining compliance with the ambient air quality standards within the State as expeditiously as practicable, and respond to any USEPA findings of inadequacy with the Illinois SIP program (415 ILCS 5/4 and 10). The Illinois EPA continues to make every possible effort to meet SIP deadlines.

Element I – Nonattainment Areas

Section 110(a)(2)(I): Plan revisions for nonattainment areas

Each plan shall –

(I) in the case of a plan or plan revisions for an area designated as a nonattainment area, meet the applicable requirements of part D (relating to nonattainment areas).

Comment: Section 110(a)(2)(I) references nonattainment area planning. The planning requirements for nonattainment areas are on a different schedule than general infrastructure SIP elements. USEPA's Guidance[6] indicates that USEPA does not expect states to include these planning requirements, e.g., Attainment Demonstrations, as part of the infrastructure SIP.

Element J – Public Notice

Section 110(a)(2)(J): Consultation with government officials, public notification, and PSD and visibility protection

Each such plan shall –

(J) meet the applicable requirements of section 121 (relating to consultation), section 127 (relating to public notification), and part C (relating to prevention of significant deterioration of air quality and visibility protection).

Section 110(a)(2)(J) requires states to provide a process for consultation with local governments and Federal Land Managers ("FLMs"), if applicable, carrying out NAAQS implementation requirements pursuant to Section 121. It also requires states to notify the public if NAAQS are exceeded in an area and to enhance public awareness of measures that can be taken to prevent exceedances. Lastly, it requires states to meet the applicable requirements of Part C related to PSD and visibility protection.

Comment: The Illinois EPA provides notice to reasonably anticipated stakeholders and interested parties. The Agency is required to give notice to the Office of the Illinois Attorney General and the Illinois Department of Natural Resources during the rulemaking process under

[6] Id.

35 IAC Part 102: Regulatory and Informational Hearings and Proceedings. The Illinois EPA also gives notice to FLMs if the rulemaking applies to federal land over which the FLM has authority. Finally, the Illinois EPA consults with the USEPA and the States of Indiana, Wisconsin, Michigan, Minnesota, and Ohio through its membership in LADCO, and consults with the State of Missouri through participation with East-West Gateway pursuant to procedures in the applicable Memoranda of Agreement.

The Illinois EPA and the Cook County Department of Environmental Control routinely monitor air quality throughout the state and notify the public when unhealthful air quality is measured or forecasted. The Illinois EPA provides air quality data to USEPA's AIRNOW program, and also provides the daily air quality index ("AQI") to the media and general public. The Illinois EPA also participates in the EnviroFlash program which sends real-time air quality notifications to the public.

The Illinois EPA is addressing both the long-term requirements to meet natural visibility levels by 2064, and the ongoing review of new major sources and major modifications under the Illinois' new source review permitting program. On July 6, 2012, USEPA approved Illinois' regional haze SIP, including provisions to implement BART (77 FR 39943). According to USEPA's Guidance[7] there are no new visibility protection requirements under part C due to a revised NAAQS. Therefore, USEPA does not expect states to address the visibility portion of Element J within the infrastructure SIP.

The Illinois EPA provides public notice for all SIP revisions with the opportunity for a public hearing when requested. Requirements for consultation with other government officials and PSD requirements have been addressed in other sections of this document. As previously addressed in the discussion of Section 110(a)(2)(C), the Illinois EPA administers the federal PSD regulations per 40 CFR 52.21. Therefore, the applicable requirements for section 110(a)(2)(J) regarding PSD have been met.

Element K – Modeling Data

Section 110(a)(2)(K): Air quality modeling and submission of modeling data

Each such plan shall –

(K) provide for –

(i) the performance of such air quality modeling as the Administrator may prescribe for the purpose of predicting the effect on ambient air quality of any emissions of any air pollutant for which the Administrator has established a national ambient air quality standard, and

(ii) the submission, upon request, of data related to such air quality modeling to the Administrator.

[7] Id.

To satisfy this element, the Illinois EPA may demonstrate the ability to perform, or require, NSR modeling and the ability to perform area-wide modeling related to attainment demonstrations.

Comment: The Illinois EPA maintains the capability and authority to perform modeling, consistent with Appendix W of 40 CFR Part 51, of the air quality impacts of emissions of all criteria pollutants, including the capability to use complex photochemical grid models. (415 ILCS 5/4). The Agency performs modeling in support of the SIP for all nonattainment areas in the State. The Agency also requires air quality modeling in support of permitting the construction of major and some minor new sources under the PSD program. These modeling studies are thoroughly documented and are available to USEPA and the public upon request.

Furthermore, the Illinois EPA participates in multi-state regional modeling efforts, including participation in and providing funding for LADCO. LADCO conducts regional modeling that is utilized for statewide planning purposes.

Element L - Fees

Section 110(a)(2)(L): Permitting fees

Each such plan shall –

(L) require the owner or operator of each major stationary source to pay to the permitting authority, as a condition of any permit required under this Act, a fee sufficient to cover –

(i) the reasonable costs of reviewing and acting upon any application for such a permit, and

(ii) if the owner or operator receives a permit for such source, the reasonable costs of implementing and enforcing the terms and conditions of any such permit (not including any court costs or other costs associated with any enforcement action), until such fee requirement is superseded with respect to such sources by the Administrator's approval of a fee program under title V.

Comment: The Illinois EPA continues to implement the approved Title V operating permit program as set forth in Section 39.5 of the Act, which includes requiring major sources to pay permit fees (415 ILCS 5/39.5). The Illinois EPA also requires fees from applicants of potential new or modified sources in the form of construction permit application fees pursuant to Section 9.12 of the Act. These fees are used to cover reviewing, processing, and enforcing these permits.

Element M – Public Participation

Section 110(a)(2)(M): Consultation and participation by affected local entities

Each such plan shall –

(M) provide for consultation and participation by local political subdivisions affected by the plan.

Comment: The Illinois EPA follows approved procedures for public participation, consistent with 35 IAC Part 164, Procedures for Informational and Quasi-Legislative Public Hearings, and 35 IAC Part 252, Public Participation in the Air Pollution Control Permit Program. Part 252 is an approved portion of Illinois' SIP.

Based on the information provided in this document, the Illinois EPA meets all of the necessary CAA Section 110 infrastructure requirements.

Attachment A: Certification of Emission Statement Requirement for the 2015 Ozone NAAQS

The Illinois EPA certifies that the previously SIP-approved Annual Emissions Report regulations, under 35 Ill. Adm. Code Part 254, meet the emissions statement requirement for areas designated as nonattainment for the 2015 ozone NAAQS pursuant to Sections 110 and 182 of the CAA.

Under Section 182(a)(3)(B) of the CAA, areas classified as Marginal and above are required to submit "a revision to the State implementation plan to require that the owner or operator of each stationary source of oxides of nitrogen or volatile organic compounds provide the state with a statement, in such form as the Administrator may prescribe (or accept an equivalent alternative developed by the state), for classes or categories of sources, showing the actual emissions of oxides of nitrogen and volatile organic compounds from that source. The first such statement shall be submitted within 3 years after the date of the enactment of the Clean Air Act Amendments of 1990. Subsequent statements shall be submitted at least every year thereafter. The statement shall contain a certification that the information contained in the statement is accurate to the best knowledge of the individual certifying the statement." USEPA has indicated that the source emission statement requirement applies to all areas designated as nonattainment for the 2015 ozone NAAQS. *Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements*, 80 FR 12264, 12291 (March 6, 2015).

All of the Illinois areas designated as nonattainment with respect to the 2015 Ozone NAAQS have an emissions statement program in place due to historic nonattainment designations for earlier ozone NAAQS. The nonattainment areas consist of the Chicago nonattainment area (Cook, Lake, DuPage, Kane, and Will Counties, Aux Sable and Goose Lake Townships in Grundy County, and Oswego Township in Kendall County) and the Metro-East St. Louis nonattainment area (Madison and St. Clair Counties).

Illinois EPA has the authority under Section 4 of the Illinois Environmental Protection Act to collect information. The Illinois EPA collects NOx and VOC emission statements under 35 Ill. Adm. Code Part 254, titled "Annual Emissions Report," which applies to any source located in an ozone nonattainment area that has the potential to emit 25 tons per year or more of VOC or NOx from all emission units during the reporting year. These regulations also apply to permitted smaller sources which are required to submit and certify source-wide totals of actual emissions for all regulated air pollutants emitted. In general, facilities subject to Part 254 must submit actual emissions data for NOx and VOC on an annual basis and must certify that the information provided is accurate to the best of the certifier's knowledge. These provisions were approved by USEPA into the Illinois SIP on May 15, 2002 (67 FR 34614). Illinois EPA hereby certifies and confirms that these regulations meet the requirements of Section 182(a)(3)(B) of the CAA for the Chicago and Metro-East nonattainment areas for the 2015 Ozone NAAQS.

Attachment B: Interstate Transport Modeling for the 2015 Ozone National Ambient Air Quality Standard, Technical Support Document